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(54) Title: THE ISOLATION AND ENRICHMENT OF NEURAL STEM CELLS FROM UNCULTURED TISSUE BASED ON CELL-SURFACE MARKER EXPRESSION

(57) Abstract: The invention provides methods for the prospective identification, isolation, and self-renewal of neural stem cells from the mammalian peripheral nervous system and compositions of neural stem cells derived from uncultured tissue. Using flow-cytometry, neural crest derived cells of embryonic peripheral nerve were fractionated based on cell surface markers. The isolated p75<sup>+</sup> P<sub>0</sub> cells from embryonic sciatic nerve were phenotypically and functionally indistinguishable from neural crest stem cells (NCSCs) previously isolated from neural tube explant cultures. Furthermore, freshly isolated p75<sup>+</sup> P<sub>0</sub> cells gave rise to both neurons and glia when transplanted *in vivo*. Cell cycle analysis and BrdU labeling indicated that p75<sup>+</sup> P<sub>0</sub> NCSCs persist in the peripheral nerve by undergoing self-renewing divisions after neural crest migration has ceased.

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